

1 Amendment of the Claims:

2 This listing of claims will replace all prior versions, and  
3 listings, of claims in the application using (Original) (Currently  
4 Amended) (New) (Canceled) (Previously Presented) nomenclature, as  
5 recited in the below listing of claims.

6 1. (Currently Amended) A method of broadcasting from a proximal  
7 cache at a proximal internet protocol address (IPA) forwarding and  
8 routing information for indicating an originator storing web  
9 content data associated with an originating uniform resource  
10 locator (URL) of a web server at an originating IPA permanently  
11 storing the web content data, the method comprising the steps of:

12 generating at the proximal IPA an originating URL for  
13 indicating the URL,

14 generating at the proximal IPA a sourcing IPA for indicating  
15 the originator,

16 generating at the proximal IPA a destination IPA for  
17 indicating a destination cache,

18 associating at the proximal IPA the sourcing IPA and the  
19 originating URL as the forwarding and routing information, and

20 transmitting the forwarding and routing information from the  
21 proximal cache at the proximal IPA to the destination cache at a  
22 destination IPA, the transmitting of the forwarding and routing  
23 information associates the sourcing IPA the originating URL with  
24 the destination IPA, for generating a forwarding and routing table  
25 in the destination cache.

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1 2. (Previously Presented) The method of claim 1 further comprising  
2 the steps of:

3       generating a distance metrics for indicating a web hop  
4 distance of a number of the plurality of cooperative web caches  
5 through which the URL web content data would be communicated from a  
6 source at the sourcing IPA through a plurality of cooperative web  
7 caches to the proximal web cache.

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9 3. (Previously Presented) The method of claim 2 wherein,

10       the originating URL is a proximal URL, the sourcing IPA is the  
11 proximal IPA, the proximal cache stores locally the web content  
12 data, and

13       the distance metric is one indicating that one web hop is  
14 between the destination cache to the proximal cache.

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16 4. (Previously Presented) The method of claim 2 wherein, the  
17 originating URL is a source URL,

18       the sourcing IPA indicates an IPA location of the source  
19 distally storing the web content data,

20       the distance metric is greater than one indicating a number  
21 greater than one of the number of web hops between the destination  
22 cache through the proximal cache to the source distally storing the  
23 web content data.

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25 5. (Canceled)

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1 6. (Previously Presented) The method of claim 4 wherein,  
2 the source is the web server distally and permanently storing  
3 the web content data, and  
4 the sourcing IPA is a web server IPA indicating the IPA  
5 location of the web server.

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8 7. (Previously Presented) The method of claim 1 wherein,  
9 the originating URL is selected from the group consisting of,  
10 an exact URL comprising a plurality of URL components,  
11 a wildcard URL comprising a plurality of URL components a last  
12 URL component of which being a wildcard component, and  
13 a coded URL being a coded URL comprising a series of hashing  
14 codes of a decomposed URL being a decomposition of the URL selected  
15 from the group consisting of either an exact URL or a wildcard URL  
16 each of which comprising a series of URL components, the series of  
17 hashing codes being a sequence of hashing codes of respective URL  
18 segments of a respective series of increasingly concatenated URL  
19 components of the series of URL components of the URL.

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1 8. (Currently Amended) A method of broadcasting from a proximal  
2 cache at a proximal internet protocol address (IPA) forwarding and  
3 routing information for indicating a distal web cache storing web  
4 content data associated with a uniform resource locator (URL) of a  
5 web server permanently storing the web content data, a proximal web  
6 cache is a first one of a plurality of cooperative web caches, the  
7 distal web cache is a last one of the plurality of cooperative web  
8 caches, the method comprising the steps of:

9       generating at the proximal IPA a distal URL for indicating the  
10 web content data of the distal URL stored in the distal web cache,

11       generating at the proximal IPA the proximal IPA for indicating  
12 the location of the proximal cache,

13       generating at the proximal IPA a destination IPA for  
14 indicating a destination cache,

15       generating at the proximal IPA a distance metric for  
16 indicating a web hop distance of any number of the plurality of  
17 cooperative web caches through which the web content data would be  
18 communicated from the distal web cache to the destination web  
19 cache,

20       associating at the proximal IPA the proximal IPA and the  
21 distal URL and the distance metric as the forwarding and routing  
22 information, and

23       transmitting the routing information from the proximal cache  
24 at the proximal IPA to the destination cache at a destination IPA,  
25 the transmitting of the forwarding and routing information  
26 associates the sourcing IPA the originating URL with the  
27 destination IPA for generating a forwarding and routing table in at  
28 least one of the plurality of cooperative web caches.

1 9. (Original) The method of claim 8 wherein,

2 the distance metric is greater than one indicating a number  
3 greater than one of the number of web hops between the destination  
4 cache through the proximal cache to the distal web cache storing  
5 the web content data.

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7 10. (Previously Presented) The method of claim 8 wherein, the  
8 distal URL is selected from the group consisting of,

9 an exact URL comprising a plurality of URL components,

10 a wildcard URL comprising a plurality of URL components a last  
11 URL component of which being a wildcard component, and

12 a coded URL being a coded URL comprising a series of hashing  
13 codes of a decomposed URL being a decomposition of the exact URL or  
14 the wildcard URL, the series of hashing codes being a sequence of  
15 hashing codes of respective URL segments of a respective series of  
16 increasingly concatenated URL components of the series of URL  
17 components of the exact URL or the wildcard URL.

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1 11. (Currently Amended) The method of claim 8 further comprising  
2 the steps of:

3       repeating the distal URL generating step, proximal IPA  
4 generating step, distance metric generating step, the associating  
5 step, a plurality of times for generating a plurality of forwarding  
6 and routing information each comprising a distal URL and a  
7 respective distance metric, and

8       incorporating the plurality of forwarding and routing  
9 information within a protocol data structure within a routing  
10 packet prior to the transmitting step, the routing protocol packet  
11 comprising the distal URL and a respective distance metric and  
12 comprising the proximal IPA and the destination IPA.

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12. (Currently Amended) A method of broadcasting from a proximal cache at a proximal internet protocol address (IPA) forwarding and routing information for indicating a distal web cache storing web content data associated with an originating uniform resource locator (URL) of a web server permanently storing the web content data, a proximal web cache is a first one of a plurality of cooperative web caches, the distal web cache is a last one of the plurality of cooperative web caches, the method comprising the steps of:

storing at the proximal IPA in a forwarding and routing table a plurality of originating URLs cross referenced to a respective plurality of distance metrics,

generating at the proximal IPA a URL identifier of the plurality of originating URLs, the originating URL for indicating the web content data of the originating URL stored in the distal web cache,

generating at the proximal IPA the proximal IPA for indicating the location of the proximal cache,

generating at the proximal IPA a destination IPA for indicating a destination cache,

generating at the proximal IPA a distance metric by cross referencing the originating URL to one of the plurality of originating URLs and to a respective one of the plurality of distance metrics for indicating a web hop distance of any number of the plurality of cooperative web caches through which the web content data would be communicated from the distal web cache to the destination web cache,

1 associating the proximal IPA and the originating URL and the  
2 distance metric as the forwarding and routing information, and  
3 transmitting the forwarding and routing information in a  
4 routing packet within a routing protocol from the proximal cache at  
5 the proximal IPA to the destination cache at a destination IPA, the  
6 transmitting of the forwarding and routing information associates  
7 the sourcing IPA the originating URL with the destination IPA, for  
8 generating a forwarding and routing table in one of a plurality of  
9 cooperative web caches.

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11 13. (Previously Presented) The method of claim 12 wherein,  
12 the originating URL is selected from the group consisting of,  
13 an exact URL comprising a plurality of URL components,  
14 a wildcard URL comprising a plurality of URL component a last  
15 URL component of which being a wildcard component, and  
16 a coded URL comprising a series of hashing codes of a  
17 decomposed URL being a decomposition of the exact URL or the  
18 wildcard URL, the series of hashing codes being a sequence of  
19 hashing codes of respective hashing of URL segments of a respective  
20 series of increasingly concatenated URL components or the series of  
21 URL components of the exact URL or the wildcard URL.

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1 14. (Previously Presented) The method of claim 12 further  
2 comprising the steps of:

3       repeating the original URL generating step, proximal IPA  
4 generating step, distance metric generating step, and associating  
5 step, a plurality of times for generating a plurality of routing  
6 information each comprising an originating URL and a respective  
7 distance metric, and

8       incorporating the plurality of routing information within a  
9 protocol data structure within the routing packet prior to the  
10 transmitting step, the routing protocol packet comprising the  
11 originating URL and the respective distance metric and comprising  
12 the proximal IPA and the destination IPA.

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14 15. (Currently Amended) The method of claim 12 wherein,

15       the storing steps creates a routing table for cross referencing  
16 the plurality of originating URLs to the plurality of distance  
17 metrics and to one or more juxtaposed cooperative web caches IPAs  
18 of one or more juxtaposed cooperative web caches of the cooperative  
19 web caches, the one or more juxtaposed cooperative web caches for  
20 forwarding and routing originating URLs to distal web caches  
21 storing the web content data of the respective plurality of  
22 originating URLs.

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24 16. (Previously Presented) The method of claim 15 wherein,

25       the proximal cache and the one or more juxtaposed cooperative  
26 web caches being within a local group of cooperative web caches.

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1 17. (Previously Presented) The method of claim 16 wherein,  
2 the proximal cache is within one or more local groups of  
3 cooperative web caches.  
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5 18. (Currently Amended) The method of claim 1 wherein,  
6 the forwarding and routing information is communicated in a  
7 packet comprising a routing item associating the sourcing IPA and  
8 the originating URL.  
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10 19. (Currently Amended) The method of claim ~~1~~ 21 further comprising  
11 the step of,

12 storing in the destination cache at the destination IPA in a  
13 forwarding and routing table the association between the URL and  
14 the source IPA, the forwarding and routing table for determining  
15 the source IPA from a URL request for forwarding and routing a  
16 request for web content data to the source IPA.  
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18 20. (Previously Presented) The method of claim 8 further comprising  
19 the step of,

20 storing in the destination cache at the destination IPA in a  
21 forwarding and routing table the association between the URL and  
22 the source IPA, the forwarding and routing table for determining  
23 the source IPA from a URL request for forwarding and routing a  
24 request for web content data to the source IPA.  
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1 21. (New) The method of claim 1, wherein  
2 the forwarding and routing information transmitted is an  
3 association of the proximal IPA pointing to the proximal cache,  
4 with the sourcing IPA pointing to a source, with the destination  
5 IPA pointing to the destination cache with the URL pointing to the  
6 originator at an originating IPA, and  
7 the forwarding and routing information is unilaterally  
8 communicated from the proximal cache to the destination cache in a  
9 routing packet.

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